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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/022,396
Filing Date	October 30, 2001
First Named Inventor	Dirne, F.
Art Unit	1753
Examiner Name	McDonald, R.
Attorney Docket Number	N-14359C

Total Number of Pages in This Submission

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
  - ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ After Allowance communication to Technology Center (TC)
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☑ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please Identify below):

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Christopher R. Pastel
Signature	C.R. Pastel
Date	July 7, 2004

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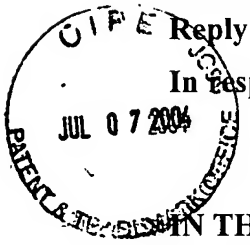

Reply Brief

In response to Examiner's Answer of May 11, 2004

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On: July 7, 2004

By: Carolyn R. Parolin

Carolyn R. Parolin

IN THE UNITED STATES

PATENT AND TRADEMARK OFFICE

Appl. No.	:	**10/022,396**
Applicant(s)	:	**Dirne, F.**
Filed	:	**October 30, 2001**
Title	:	**MAGNETIC HEAD HAVING A WEAR-RESISTANT LAYER, AND METHOD OF MANUFACTURING SUCH A MAGNETIC HEAD**
TC/A.U.	:	**1753**
Examiner	:	**McDonald, R.**
Atty. Docket	:	**N-14359C**

REPLY BRIEF under 37 C.F.R. § 1.193

Mail Stop Appeal Brief-Patents
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Sir:

In response to the Examiner's Answer of May 11, 2004, please accept the following Reply Brief in the above referenced application.

Argument

This Reply Brief is limited to rebutting certain of the arguments put forth in the Examiner's Answer, and is not intended to be a mere recitation of the same arguments put forth in the Appeal Brief.

Rejections under 35 U.S.C. § 102

Claim 10 is rejected under 35 U.S.C. § 102(a) over Satoru et al. The Examiner is thanked for providing a translation of this reference. It is noted in passing that the reference should properly be referred to as Nishiyama et al. instead of Satoru et al., "Satoru" evidently being the

inventor's first name instead of last name. Applicants do not understand why the translation lists Mr. Nishiyama's first name as "Satoshi" instead of "Satoru", but evidently this is because of a translation error either in the Patent Abstracts of Japan or in the instant translation, and as such, is believed to be not relevant to the underlying rejection of the claims and this appeal.

The Examiner's Answer depends heavily on equating "chemical stability" as found in the Nishiyama et al. reference with the phrase "more insensitive to corrosion" as found in claim 10 in order to find a necessary claimed element as being inherent in the prior art. Section 2112 of the MPEP, which discusses the requirements for showing inherency, cites to *In re Napier*, 55 F.3d 610, 613, 34 USPQ 2d 1782, 1784 (Fed. Cir. 1995) as holding that the inherent teaching of a prior art reference is a question of fact. Initially, the Examiner must provide rationale or evidence tending to show inherency. However, a showing that a characteristic may be present in the prior art is not sufficient to establish the inherency of that characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). The Examiner's dependence on equating "chemical stability" to "more insensitive to corrosion" merely shows that the characteristic "more insensitive to corrosion" **may** be present in the prior art, but doesn't adequately resolve the factual question itself.

In addition, the Examiner errs in his analysis. Chemical stability is not related to insensitivity to corrosion. Corrosion is known to those in the art as being electrochemical in nature. As is also known in the art, and as is alluded to in the specification, page 3, lines 6-12, corrosion occurs only between dissimilar materials. Corrosion resistance is a relative phenomenon in that it only has meaning when one material is compared to another. As the specification explains, the standard potential reduction values of the materials are what matter. Tables of Standard Reduction Potentials are known in the art, containing listings of materials with their E° (expressed in Volts vs. standard hydrogen) values. The more positive a value, the more noble the material, while negative values indicate less noble materials. When the more noble of two metals in contact in an electrolyte causes electrochemical attack of the less noble metal, this phenomenon is known to those in the art as galvanic corrosion. The invention as defined in claim 10 uses the sacrificial-anode method (as is known in the art) to protect the head material by providing a material in the first layer which is less noble than the head material

("forming a first layer on said head face of a first material which is more sensitive to corrosion than said materials in said head face") so that the less noble material (the first layer) is attacked instead of the more noble material (the head materials).

The head is recited as a "magnetic head" in claim 10 which implies that one of the materials in the head is iron. This is also consistent with the explanation in the specification. Claim 10 then recites forming a first layer on the head, with the first layer being more sensitive to corrosion than the materials in the head face. The prior art reference discloses the first layer as being a thin film containing one or more of the elements from Groups IIIb, IVa, and IVb of the periodic table. Just how do these elements relate to the iron in the head in terms of being more sensitive to corrosion, i.e., less noble than iron? Of the Group IIIb elements, Al is less noble and would thus work, while Tl is more noble and would not. Of the Group IVa elements, no references in the Table of Standard Reduction Potentials could be found. Of the Group IVb elements, both Sn and Pb are more noble than iron and would not work. The elements contained in these groups not mentioned were not found in the Table of Standard Reduction Potentials. It should be clear that there is no relationship between the categorization of elements in the periodic table with whether or not those elements are more or less sensitive to corrosion.

In addition, the prior art reference was not concerned with corrosion, but rather with other characteristics. On page 11 of the translation, the first layer is disclosed as preventing the deterioration of the adhesion of the thin boron nitride film (equated to the second layer in claim 10) subsequently formed on the intermediate layer (equated to the first layer in claim 10). Such deterioration is caused by the difference between the coefficient of thermal expansion of the atoms in the material of the magnetic head and that of the thin boron nitride film. This is mentioned again on pages 17 and 18 of the translation. Nowhere in the prior art is any mention of corrosion nor of standard reduction potentials nor anything else to indicate whether boron nitride applied as the second layer in claim 10 inherently has the property of being more insensitive to corrosion than the material in the magnetic head. For this and the reasons expressed above, the "chemical stability" inherent in boron nitride and so heavily relied upon by the Examiner in the rejection of claim 10 cannot be equated with "more insensitive to corrosion" as would be necessary to meet the Examiner's burden of proof in establishing inherency. Thus,

the Examiner is simply stating a conclusion without any evidence in the reference to support the conclusion, which is not permitted. *In re Rijckaert*, 28 USPQ2d 1955 (Fed. Cir. 1993). Accordingly, the rejection of claim 10 under 35 U.S.C. § 102(a) should be reversed.

Rejections under 35 U.S.C. § 103

Claim 9 is rejected under U.S.C. § 103(a) over Satoru et al. in view of Waldkircher. (Applicants will hereinafter refer to "Satoru" as "Nishiyama" for the reason stated above.)

Applicants' apologize for their mistranslation of the phrase in Waldkircher that evidently means the opposite of what Applicants thought. Applicants relied on an on-line translation for the words "ist als" without realizing that the phrase actually began earlier in the text. Fortunately, the Examiner had the Waldkircher published application translated, so there is no dispute over the thicknesses of the layers involved. Accordingly, Applicants' arguments in the Appeal Brief concerning thicknesses are not relevant to the discussion and should be disregarded, except for the fact that Nishiyama et al. does not define the thickness of a "thin film."

Here is Applicants' argument in a nutshell. There is no motivation in Waldkircher to use a third layer. There is no motivation in Nishiyama et al. to use a material other than boron nitride as the outer layer. Thus, there is no motive to combine the references to be found in the references. In addition, the Examiner has not pointed to any knowledge generally available to one of ordinary skill where such motivation is to be found. Applicants therefore conclude that the legal requirements for an obviousness rejection are not met.

In response to Applicants' argument that no motive to use a third layer is found in Waldkircher, the Examiner states that the motivation in Waldkircher is found in Nishiyama et al. This is incomprehensible to Applicants. Either there is motivation in Waldkircher or there is not; one simply cannot say that the motivation in Waldkircher is actually to be found in Nishiyama et al. There is no discussion in Waldkircher about assisting adhesion because assisting adhesion is simply not a problem in Waldkircher. If there is no motivation in Waldkircher to use a third layer, then the motivation must reside in Nishiyama et al. if such motivation exists anywhere.

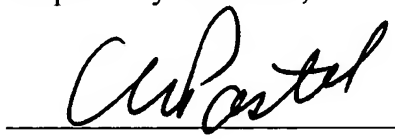
And in fact, Nishiyama et al. discloses motivation for a third layer, but such motivation cannot be said to exist in Waldkircher.

In response to Applicants' argument that there is no motivation in Nishiyama et al. to use a material other than boron nitride as the outer layer, the Examiner states that one could readily envisage interchanging the metal nitrides of boron nitride and titanium nitride since both serve the function of wear protection. But if boron nitride already serves the function of wear protection, why replace it with titanium nitride? And if it were truly obvious to make such a substitution, then why hasn't the Examiner cited prior art to back up the assertion? There is also no mention in Nishiyama et al. that materials other than boron nitride would be suitable.

There is also no mention in Nishiyama et al. of the thickness of the "thin film" of boron nitride. Applicants have specific reasons for limiting the thicknesses of the middle and outer layers on the head face. Applicants set out to solve a problem that no one else had solved. Specifically, wear-resistant layers that are too thick degrade the transfer of information from the magnetic media to the magnetic head, while wear-resistant layers that are too thin, less than 100 nm, do not protect the magnetic head from corrosively reacting substances. (Specification, page 1, line 23 to page 2, line 7) To solve this problem, Applicants invented a first layer to go onto the magnetic head to provide corrosion protection and a second layer to go onto the first layer to provide wear resistance. Nowhere in the prior art is such a solution disclosed, suggested, or made obvious.

Accordingly, the rejection of claim 9 under 35 U.S.C. § 103(a) should be reversed.

Respectfully submitted,



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